National Weather Service
Midland/Odessa
Weather Forecast Office

Dust Devil Digest

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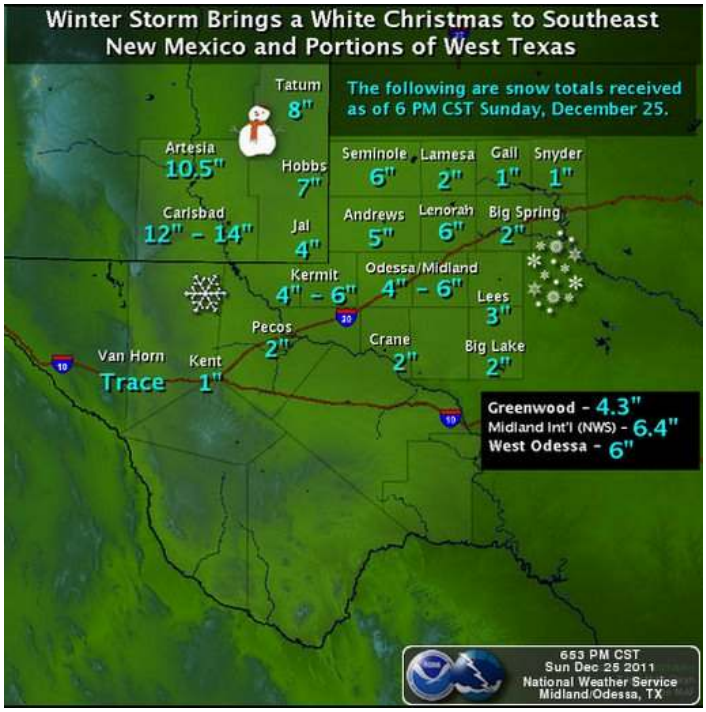
Volume 1, Issue 2 Fall/Winter 2011

Major Winter Storm Provides Rare White Christmas



For the first time since 1997, portions of southwest Texas and southeast New Mexico experienced a white Christmas this year.

Forecasters saw the potential for significant snowfall almost a week prior to the event. Snow started falling late Friday, December 23, and continued all day on Saturday.

In an event seldom seen in Midland, it snowed for 30 consecutive hours! The end result was a total event snowfall of 6.4 inches. Of that total, 5.8 inches of snow fell on Saturday alone. This marked the 4th most snow ever on a single day in Midland, only surpassed by a record 9.8 inches of snow on December 11, 1998, 6 inches of snow on 11/28/01, and a 5.9 inch snowfall back on January 9, 1955. As much as 14 inches of snow fell in Carlsbad, New Mexico with this recent event.

Welcome to the Dust Devil Digest!

The staff of the National Weather Service in Midland, TX is proud to present the second edition of our newsletter, the *Dust Devil Digest*. This quarterly newsletter will cover the major weather headlines of west Texas and southeast New Mexico. Each edition will also include information about past, present, and future weather events, weather safety tips, services we provide, and much, much more! We hope you find our newsletter to be a useful source of information, and gain insight into some of our operations at the National Weather Service here in Midland which help us serve our main goal; the protection of life and property.

An American flag with smoke from the Alpine/Ft. Davis fire from April, 2011 in the background

Innovative Fire Weather Forecasting Techniques: Red Flag Threat Index

By Greg Murdoch, Kat Hawley

Fire weather forecasting is a very important part of operations at the National Weather Service (NWS) office in Midland. Fire weather forecasts are produced twice a day to help firefighters fight and prevent fires. These forecasts are used by many different agencies within the NWS Midland area of responsibility such as the US Forest Service, the Texas Forest Service and local fire departments. These forecasts consist of wind speed, relative humidity, temperature, and other factors which help in determining if a day will have dangerous fire concerns. High winds and low relative humidities greatly contribute to fires becoming out of control. When the relative humidity falls to or below 15%, and wind speeds increase to or above 20 MPH, the NWS office will issue a product called a Red Flag Warning. This product will alert fire departments that critical thresholds will be met, allowing them to keep extra staff.

A group of meteorologist across the country (Gregory Murdoch, Christopher Gitro, Todd Lindley and Jeffrey Vitale) invented an index called the "Red Flag Threat Index" (RFTI). The RFTI is an index that will provide crucial details on a fire that is ongoing. The index provides additional information to the US Forest Service and fire departments in a way that they know how dangerous

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"The RFTI is an index that will provide crucial details on a fire that is ongoing."

We're on the Web!

www.weather.gov/midland

Local Agencies Work Together to Build Weather Kiosk at Guadalupe Mountains National Park

After almost 5 years of planning and work, an interactive weather kiosk was installed at the Guadalupe Mountains National Park this past June. The kiosk installation took a coordinated collaboration between three separate entities; the National Weather Service offices in Midland and in Lubbock, the National Park Service, and Texas Tech. The kiosk can access current weather information (updated every 5 minutes) and forecast information from the NWS for the park area at the touch of a button, as it features an interactive touch screen. If there's any warning, watch, or advisory in effect, that will also display on the kiosk and be highlighted for visitors to see. In addition to important weather information, the kiosk also provides safety information on what to do in the case of high wind events, thunderstorms, and winter weather events. Cody Lindsey, a meteorologist at the National Weather Service in Midland and one of the the project say they're receiving feedback from the visitors and staff at the Park, and that the feedback they get will be taken into consideration if any other kiosks are placed in national parks in the future. "It would be nice to see the kiosk eventually expanded to other parks such as Big Bend National Park or Carlsbad Caverns National Park. Of course, that would take a lot of planning and coordination, amongst other things," Lindsey said.

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2012 Skywarn Spotter Talks Coming Soon!

As we bid farewell to 2011, we begin to welcome in the start of the Skywarn spotter talk season for 2012. With this being his 12th year of organizing the Skywarn spotter talks for west Texas and southeast New Mexico, Pat Vesper, the Warning Coordination Meteorologist at the Midland, TX WFO, believes the talks will provide more value than just learning about severe weather. "It really has a lot to do with getting the different organizations that are in a community all in one place to get unified training, and to get everyone on the same page together," Vesper says.

A new addition for this year is the opportunity to take the Skywarn spotter training online via courses produced at the national level. Completing the Skywarn spotter talks online is enough to earn you certification. However, Vesper says, there is a major advantage to attending the talks in person: "The major advantage to going to the talks in person versus online is that the talks provide everyone the opportunity to put faces with names, and to work on building the personal relationships we need across the 26 counties of west Texas and southeast New Mexico. From the perspective of the National Weather Service, to be successful in meeting our mission, which is the protection of life and property and the enhancement of commerce, it is certainly a lot more effective for us to be able to get out there and build those relationships in person." Vesper also said he would love to see members of more than one entity, including the general public, in each community show up to the talks so relationships between one another can start being built and/or enhanced.

The schedule for the 2012 Skywarn spotter talk season is expected to be finalized by early February, and posted to the National Weather Service in Midland's webpage by mid-February. The talks for this year will take place from the end of February through April, and will try to be scheduled around community events.

"The talks provide everyone the opportunity to put faces with names, and to work on building the personal relationships we need…"

Red Flag Threat Index

(Continued from page 2)

the situation will be. If the RFTI has a high value, the fire has the potential to become dangerously out of control and burn thousands of acres.

The RFTI produces ratings on a scale of 0 to 10, with 0 indicating a minimal threat for fires to become out of control. As the values increase, so does the threat for large destructive fires. When the RFTI reaches a value of 5 or greater, any fires that are ongoing, or fires that may start later in the day, will have a much greater likelihood of becoming violent and out of control.

In Midland's area of responsibility, each fire that has had a RFTI of 5 or greater (which is considered "Critical-High"), burned over 35,000 acres on average. It should be emphasized that the index is not a direct predictor of fire starts, but can help a forecaster and an agency understand the severity of a situation. This index can be applied anywhere in the country and can be used in support of fire

Red Flag Threat Index categories

Local Agencies Work Together to Build Weather Kiosk at Guadalupe Mountains National Park

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The National Weather Service in Midland would like to give special thanks to Todd Lindley and the National Weather Service in Lubbock for their support, Pat Vesper, Wes Burgett of Texas Tech, the National Park Service, Wayne Patterson, John Holsenbeck, Gary Skwira, Mark Condor, Joe Jurecka, and Marsha Black.

Midland/Odessa
WEATHER FORECAST OFFICE

2011 Drought Update: The Drought's Still Here!

After having a 55-day and a 51-day stretch without precipitation in what looked like would wind up being the driest calendar year on record, Midland received several days of precipitation in October, November, and December. At 4.57 inches of precipitation (through Dec. 16), Midland is out of the running for its driest calendar year on record. The second driest calendar year in record is 5.14 inches (1998), so Midland has a decent chance at second place. Here is an update on precipitation across the area:

City	Jan. 1-Dec. 16, 2011 Precipitation	Normal Precipitation	Departure From Normal	Percent of Normal
Alpine	2.93	16.72	-13.79	17.5%
Bakersfield	3.21	14.91	-11.70	21.5%
Big Lake	6.73	18.84	-12.11	35.7%
Big Spring	4.55	18.03	-13.48	25.2%
Carlsbad, NM	3.09	11.6	-8.51	26.6%
Castolon	3.26	10.71	-7.45	30.4%
Lamesa	2.92	18.74	-15.82	15.6%
Lubbock	5.05	18.77	-13.72	26.9%
Midland	**4.57**	**14.32**	**-9.75**	**31.9%**
Roswell, NM	4.42	12.62	-8.20	35.0%
San Angelo	9.06	20.81	-11.75	43.5%
Snyder	7.86	22.17	-14.31	35.5%
Van Horn	2.83	11.29	-8.46	25.1%

This Winter Expected to Similar to Last Year: Warm & Dry

By Raymond Fagen, Meteorologist-In-Charge

Last winter, La Nina conditions predominated across West Texas and southeastern New Mexico, which led to a relatively warm and dry winter. Cold fronts were mainly precipitation-free, with only a total of 0.09 inches of precipitation occurring at Midland from December 2010 through February 2011; 5% of the normal December – February precipitation average of 1.76 inches.

Figure 1 shows negative sea surface temperature anomalies (La Nina conditions) occurred through February 2011, and neutral or slightly positive sea surface temperature (heat) anomalies occurred from March through July 2011. In late August, negative sea surface temperature anomalies returned.

Figure 2 shows cooler than normal sea surface temperatures tend to displace the polar jet stream further north than typical, resulting in warm and dry conditions across West Texas and southeastern New Mexico.

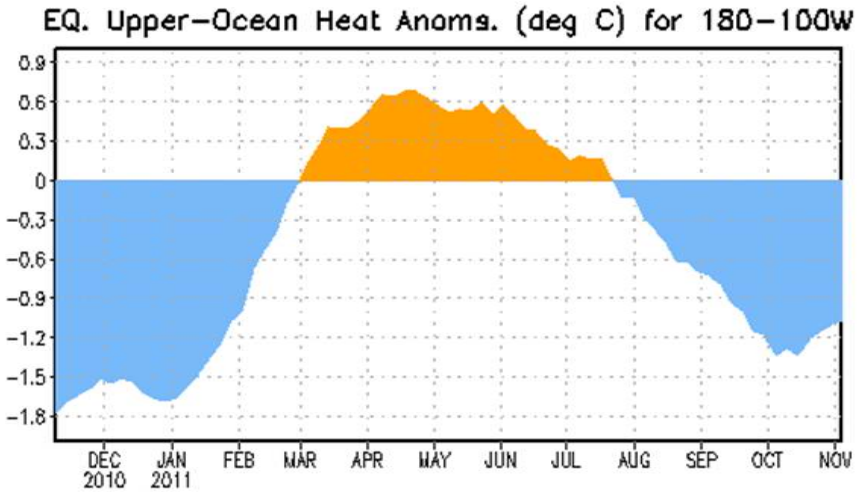

FIG. 1. Sea surface temperature anomalies from December 2010 through November 2011 for the eastern Pacific Ocean.

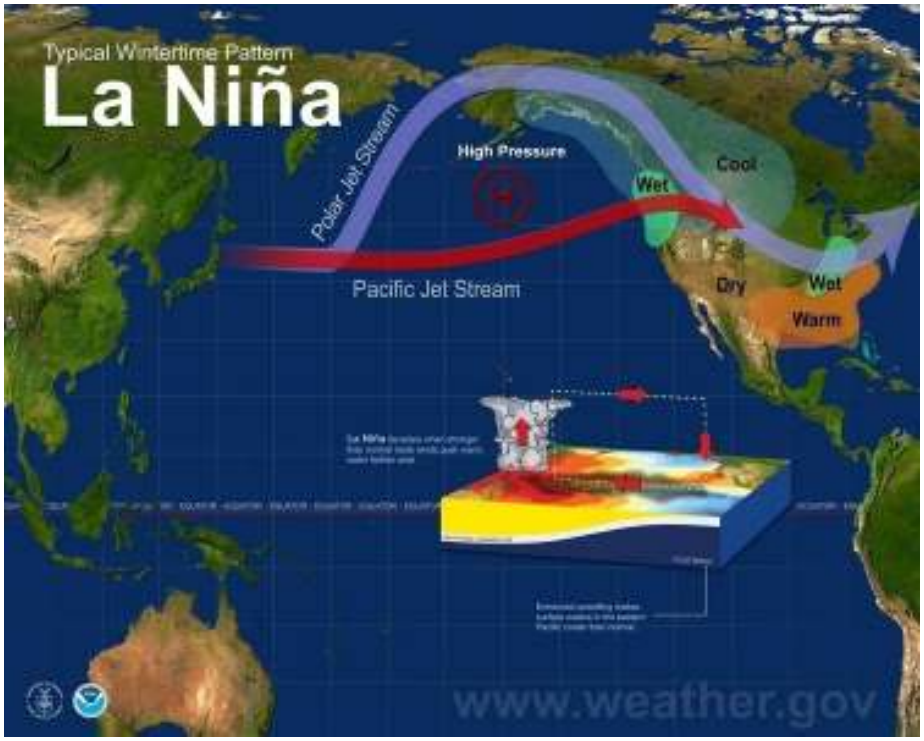

FIG. 2. How a typical La Nina pattern affects the weather in the United States.

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This Winter Expected to Similar to Last Year: Warm & Dry

"West Texas and southeast New Mexico are unlikely to receive enough rain or snow to alleviate the ongoing drought..."

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The Climate Prediction Center has issued a warm and dry forecast for the upcoming winter.

West Texas had experienced its driest 12-month period on record from October 2010 – September 2011, which caused extreme to exceptional drought conditions across the area. With La Nina conditions expected to continue through the upcoming winter, West Texas and southeastern New Mexico are unlikely to receive enough rain or snow to alleviate the ongoing drought.

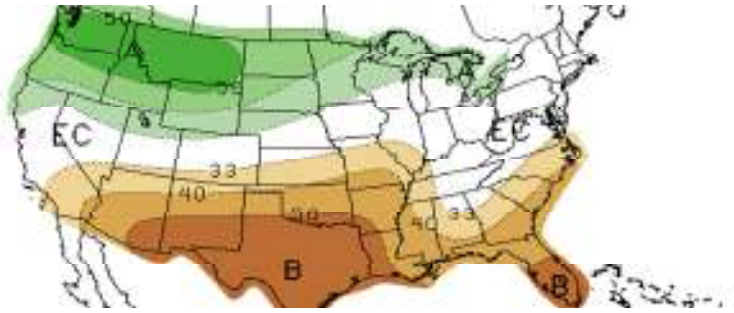
What to Expect

- Continued drought conditions through the winter months.
- Rapid wildfire growth as winds increase and humidity values plummet just ahead of and immediately following cold fronts.
- County burn bans likely to continue.
- Potential water restrictions due to low reservoir levels.

Three-Month Outlook: Temperature Probability

Valid November, December 2011, January 2012
A Means Above Normal, N Means Normal, B Means Below Normal
EC Means Equal Chances for A, N, or B

Three-Month Outlook: Precipitation Probability



Valid November, December 2011, January 2012
A Means Above Normal, N Means Normal, B Means Below Normal
EC Means Equal Chances for A, N, or B

2011 Weather Review: A Year for the Record Books!

Weather-wise, 2011 was a year that many will remember for quite some time, and also a year that many will want to forget as soon as possible.

In Midland, several record maximum and minimum temperatures were broken, and additionally, Midland looked to be well on the way to having its driest calendar year ever. This article recaps the major highlights of the year and lets us know where we stand on the year for precipitation.

Jan-Feb-Mar

January 2011 perhaps provided us a sign of things to come for the rest of the year. February was the one month that brought us extremes on the cold side of the spectrum. And then as we transitioned from winter to spring, Midland began setting records for daily high temperatures.

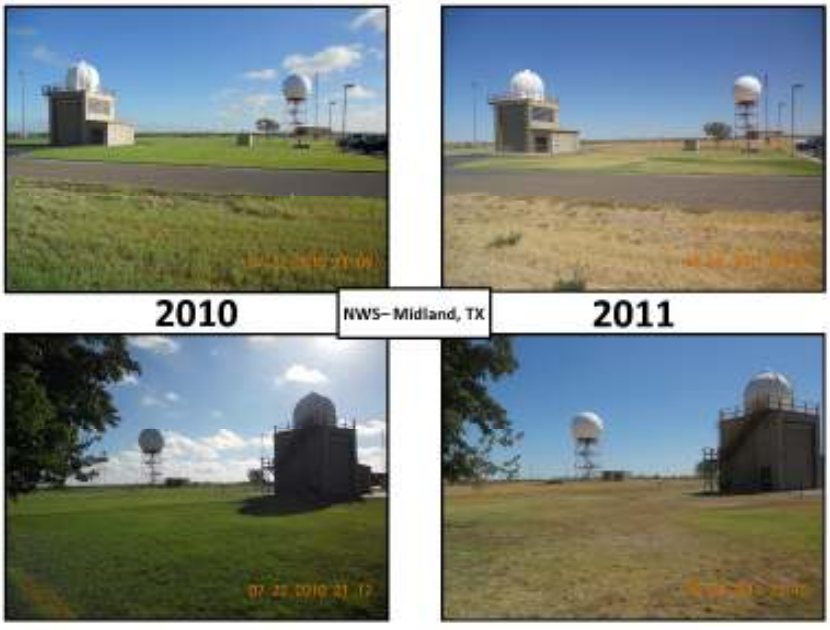
- Typically, high temperatures for January in Midland are in the mid 40˚s. This past January brought us 4 days above 70˚F.
- This January was the 10th driest January on record, producing only 0.02" of precipitation (which fell on the very last day of the month).
- On 5 days in February record low temperatures were set, and the week after the record lows were set, 2 days set record high temperatures.
- In February, 6 days featured single-digit low temperatures, and 6 days featured high temperatures in the 80˚s.
- With 2.5" of snow measured at the Midland International Airport, February was the 9th snowiest February on record.
- Hot air returned in March, as March 16th, 17th, 18th all set record high temperatures of 88˚F, 91˚F, and 90˚F, respectively.
- Overall, March was the 2nd warmest March on record with an average temperature of 61.9˚F.

3 mornings in March set records for having the daily warmest minimum temperature.

Mar-Apr-May

The transition into spring marked the beginning of what would be the warmest spring and summer in recorded Midland weather history. The strong La Nina weather pattern not only brought record-setting heat to the area, but also record-setting precipitation deficits.

- 5 days in April brought new record high temperatures to Midland.
- For the 4th time in recorded April weather history, there was no precipitation in April.
- At 71.6˚F, April was the warmest April on record.
- May began the start of 100˚F or greater days for 2011, with new record highs of 106˚F and 107˚F set on May 27 and May 28, respectively.
- In May, 4 mornings set records for the warmest minimum temperatures.
- With 0.05" of precipitation, this was the 2nd driest May on record.



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2011 Weather Review: A Year for the Record Books!

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- Overall, this was the warmest spring on record, with an average temperature of 69.57˚F.

At 0.09" of precipitation, this was the driest spring on record.

Jun-Jul-Aug

La Nina continued to settle in, and the warmest and 2nd driest summer in recorded weather history for Midland occurred. Before 2011, over the past 30 years, the average summer high temperature has been just over 81˚F.

- With an average temperature of 88.0˚F, June of 2011 was not only the warmest June, but the warmest month ever for Midland… a new record that would almost be broken two months later August.

- The record for consecutive triple-digit days was tied at 14 from June 7th – June 20th. Ultimately, 21 Days in June were 100˚F or greater, which is the 2nd most number of triple-digit days in one month.

- 10 days set record high temperatures, with 6 of them occurring consecutively (June 14th – June 19th).

- No precipitation fell at the Midland Airport for the first time ever in a June.

- July was the 3rd warmest month on record for Midland, and the warmest July ever recorded, with an average temperature of 87.0˚F.

- 16 days in July were at or above 100˚F, and 12 days topped out at 98˚F or 99˚F.

- The lowest high temperature in June was 93˚, and the lowest high temperature in July was 95˚F.

- A trace of precipitation was recorded in July, making it tied for the 2nd driest July on record.

- August was the 2nd warmest month in Midland recorded weather history, behind June, 2011.

- 8 days in August set record high temperatures.

- 22 days in August were at or above 100˚F, which set a record for number of triple-digit days in one calendar month. 7 days topped out at 98˚F or 99˚F.

- August 13th had a below normal high temperature, making that the first time since May 20th (84 consecutive days) the high temperature was below normal.

- Overall, this was easily the warmest summer on record at 87.60˚F for an average temperature. The 10th warmest summer on record had an average temperature of 82.87˚F.

- The 5th, 9th, and 11th warmest temperatures every recoded in Midland occurred in June.

At 0.45", this was the 2nd driest summer on record.

Sept-Oct-Nov

As we transitioned from summer into fall, temperatures returned

closer to historically normal levels. There were also a few days of rainfall in Midland, which aided in taking 2011 out of the running for the driest calendar year in recorded history.

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2011 Weather Review: A Year for the Record Books!

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- 20 of 30 days had above average temperatures.
- 2 days had temperatures above 100˚F, giving us a grand total of 65 triple-digit days for 2011.
- 0.93" of precipitation fell on September 15th, which is almost twice as much precipitation that had fallen in all of 2011 prior to that date.
- A little bit of record-warm air held on to Midland in October, as record high temperatures were set on 2 days.
- 1.31" of precipitation fell on October 8th, which set a daily precipitation record for that day.

Month	Average Temperature	Normal Avg. Temperature	Difference	Histoical Rank (Warmest)
January	42.5	43.6	-1.1	-
February	45.7	48.0	-2.3	-
March	61.9	55.2	6.7	2nd
April	71.6	64.1	7.5	1st
May	75.2	72.7	2.5	14th (tied)
June	88.0	80.0	8.0	1st** (warmest in recorded history)
July	87.0	81.8	5.2	1st
August	87.8	81.0	6.8	1st** (2nd in recorded history)
September	76.6	74.4	2.2	17th (tied)
October	66.9	64.9	2.0	17th (tied)
November	54.4	52.6	1.8	-
December* (Through 12/16)	41.4	45.1	-3.7	-
Total	**66.6**	**63.6**	3.0	1st* (Through 12/16)

Month	Monthly Precipitation	Normal Precipitation	Percent of Normal	Histoical Rank (Driest)
January	0.02	0.6	3.3%	9th (tied)
February	0.05	0.63	7.9%	15th
March	0.04	0.52	7.7%	16th (tied)
April	0.00	0.78	0.0%	1st (tied)
May	0.05	1.86	2.7%	2nd
June	0.00	1.67	0.0%	1st
July	0.00	1.77	0.0%	2nd (tied)
August	0.45	1.66	27.1%	-
September	1.59	1.96	81.1%	-
October	1.46	1.56	93.6%	-
November	0.20	0.62	32.3%	-
December* (Through 12/16)	0.71	0.32	221.9%	-
Total	**4.57**	**13.95**	**32.8%**	2nd* (Through 12/16)

Meet Our Staff: Wayne Patterson, Electronic Systems Analyst

How many years have you been in the NWS, and where were you before joining the NWS?

"I've been here in Midland since December of 1990. I got into active duty in the Air Force in 1975, and then changed over to civil service in 1981. I was very unusual in my 20 years of duty in that I never got into a single war. I got in at the end of the Vietnam War, and I flew in support of Desert Storm over Iraq, and was already out by Operation Enduring Freedom, so I never saw any type of action."

What are some of your main duties? What does your job entail?

"The number one duty is to keep all of the equipment up for the forecasters, and to keep everything running on a day-to-day basis. Our primary ongoing job is preventative maintenance, so that when there is a major event, the equipment is running correctly."

What are some of the biggest changes the weather service has undergone in your time here?

"The biggest change was the modernization of the National Weather Service. That was the introduction of the new offices, the computers, and NEXRAD. NEXRAD basically turned radar into a peripheral with the computer running it, which is quite a big change from the olden days.

In the olden days, there was one mini-computer in the entire office, and now where everyone has their own workspace and more than one PC, and that's amazing."

What's your favorite thing about working for the NWS?

"The people. It's the people in the Weather Service and working with the people in the community."

What are the most challenging things about your job?

"Oooh, that's tough. Primarily, I guess the training and the constant changing of equipment. With the constant changing of equipment, we're constantly training. The equipment has really gone from 1950s technology to today's status… Going from landlines to wireless has been quite an eye-opener."

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Meet Our Staff: Wayne Patterson, Electronic Systems Analyst

(Continued from page 10)

What's the most significant weather event you recall in your time here?

"Well there's been a couple of big events… this last year has been our biggest fire weather year and driest year in all of the time I've been here.

The rain event, when we lost a bridge on Interstate 20… We actually warned them about the bridge before it failed, and no lives were lost."

What will you miss most about working for the NWS?

"The people. The Weather Service has become family. And all of the interns coming in and seeing them develop and go off, it's like sending your kids off to college. They come in here all new, scared, and wide-eyed; then they leave here, and they're forecasters."

What are your plans for your retirement?

"*Mainly spend it with family. Just in the last two years, I've lost two brothers and have a sister who's sick, and a mother that's ailing… so I just plan on being with family. I've got some land too, so I'm going to be working on the land, and I'm going to raise some free range chickens!"*

What advice do you have for the person who will take over your duties?

"I think there's good people in the Weather Service. Being the ESA in the Weather Service is very challenging… You can go from sweeping the floor one day and changing light bulbs to working on a network radar or working on equipment in the field by yourself the next.

Keep your eyes open and don't be afraid to take risks."

What kind of hours and days do you work?

"Our job is primarily 8 to 5 hours, but we're on call 24 hours a day. We take our responsibilities very seriously, and even though we're not paid to be on call and we don't have to stay in the area, usually we try to keep one person in the area and alternate for holidays and big events, so the office is covered 24/7."

Any words for the public, colleagues, etc.?

"For everyone in the Weather Service, I think of them as family. And I'm going to miss them, but I'll be in the area, and I'll keep in touch.

Also, it's the things you go through in life, both the good and the bad, that make you who you are."

On behalf of the Midland National Weather Service, we'd like to wish Wayne Patterson the best of luck with his future retirement. Wayne, you have always been there to serve our communities. You have formed many friendships over the years, not only within our office, but with our partners across southeast New Mexico and west Texas. This is a testimony to the great service you have provided all these years. Thank you for a job well done!

We will miss you greatly. We hope that your future endeavors are as successful and rewarding as your experiences have been at WFO Midland!

National Weather Service in Midland is on Facebook!

With an expanding population and advancements in technology, the need and capabilities to send and receive information in efficient, diverse ways to the public has grown. The National Weather Service in Midland, TX debuted its Facebook page on Monday, May 9, 2011. We have taken advantage of Facebook to aid in decision support and public awareness of forecasted weather by providing daily hazardous weather webcasts and graphical weather headlines/ forecasts, amongst other informative weather posts. In the 7 months our Facebook page has been up, we've had over 240,000 post views and average over 100 users per day. We're hoping the addition of our daily weather hazard decision support webcasts will increase our Facebook traffic, as we value interaction with our 'fans' and customers. The more people we have following and monitoring us on Facebook, the easier it is to get out important weather forecasts!

Stay Informed: Winter Weather Safety

Many locations across west Texas and southeast New Mexico have already received several inches of snow in December of 2011. Here are a <u>few</u> quick reminders about keeping you and your family safe during these winter months.

Driving: When snow and wintry precipitation occurs, roadways (especially overpasses and bridges) can become very slippery, possibly leading to potentially dangerous driving conditions. Here are some tips for handling winter weather on the roads:

- Decrease your speed and leave extra space between your vehicle and the vehicle in front of you.
- Just because a vehicle may be an All-wheel or four-wheel drive vehicle, does **<u>NOT</u>** mean it stops or steers better on ice than two-wheel drive vehicles.

Slow down when approaching intersections, offramps, and other areas of traffic.

Staying Warm: Though it is not very common for air temperatures to fall below zero in west Texas and southeast New Mexico, strong winds can bring the wind chill values down to hazardous levels. To help stay warm when temperatures are cold:

- Dress in layers and stay dry. Your outermost layer of clothing should be waterproof, if possible.
- Mittens <u>are</u> warmer than gloves. This is because your fingers retain more heat when they are touching each other.
- Keep your extremities (head, hands, and feet) warm. Your extremities let off the most heat, so be sure to wear a hat, mittens/gloves, extra socks, etc. to keep them covered.

You can monitor the latest weather information via a NOAA Weather Radio, online at www.weather.noaa.gov/midland, or visit us on our Facebook page.

What Does it Mean? Winter Weather Products

After the warmest summer on record, the month of December brought wintry precipitation and some snow to west Texas and southeast New Mexico. With more months of wintry weather possible, the National Weather Service in Midland may be issuing more winter weather products. These products provide our users and partners advance notice of hazardous non-precipitation weather events that threaten life or property. Here is a quick rundown of the criteria for each winter weather product we may issue:

Here's a Link to Our Severe Weather Page:

http://www.srh.noaa.gov/maf/?n=top_severe

Warning Product Name	Criteria Description
Blizzard Warning	Issued for sustained or gusty winds of **35 mph or more**, accompanied by falling and/or blowing snow, frequently reducing visibility to or less than **¼ mile** for 3 or more hours.
Ice Storm Warning	Issued if freezing rain/drizzle is occurring with a significant accumulation of more than 1/4 inch of ice, or 1/2 inch of sleet.
Winter Storm Warning	Issued when more than one predominant hazard (i.e., heavy snow and blowing snow, snow and ice, snow and sleet, sleet and ice, is meeting or exceeding 12 and/or 24 hour warning criteria for at least one of the precipitation types.
Wind Chill Warning	Issued when wind chill temperatures are expected to meet or exceed ≤ 15˚F.

Watch Product Name	Criteria Description
Blizzard Watch	Conditions are favorable for a blizzard event to meet or exceed Blizzard Warning criteria in the next 12 to 48 hours.
Winter Storm Watch	Conditions are favorable for a winter storm event (Heavy Sleet, Heavy Snow, Ice Storm, Heavy Snow and Blowing Snow, or a combination of these events) to meet or warning criteria in the next 12 to 48 hours.
Wind Chill Watch	Conditions are favorable for wind chill temperatures to meet or exceed ≤ 15˚F in the next 12 to 48 hours.

Advisory Product Name	Criteria Description
Winter Weather Advisory	Issued for accumulations of snow, freezing rain, freezing drizzle, and sleet which will cause significant inconveniences and, if caution is not exercised, could lead to life-threatening situations.
Freezing Rain Advisory	Freezing rain/drizzle is occurring, or expected to occur, causing hazardous driving conditions and/or accumulations up to 1/4 inch.
Wind Chill Advisory	Issued when wind chill values in the range of -14˚F to -5˚F are expected.

Weather Trivia

This edition's weather topic: **Winter Weather**

Easy (1 point each)

1. True/False: Snow cannot reach the ground as snow if the temperature at the surface is above 32˚F.

2. True/False: In the U.S., the winter months are colder than the summer months because the earth is farther away from the sun during the winter.

3. The two main parameters used to determine wind chill are:

a. Temperature and Relative Humidity

b. Snow Depth and Relative Humidity

c. Temperature and Snow Depth

d. Temperature and Wind Speed

Medium (2 points each)

1. True/False: One inch of ice would weigh down a power line more than one inch of wet snow.

2. What is an *Alberta Clipper*?

a. An area of cold air that forms in the southern U.S. discovered by Alberta Watson.

b. A fast-moving snow system that originates in Canada and often time impacts states along the Canada/U.S. border.

c. A tool manufactured in Canada that is used by hair stylists in salons in the U.S.

d. An area of cold air that forms in the southern U.S. and moves into Canada, eventually dissipating in Alberta.

3. As a general rule, one inch of rainfall is often equal to roughly this many inches of snow:

a. One Inch

b. Two Inches

c. Ten Inches

d. Fifty Inches

Hard (3 points each)

1. The latest into the year snow has been recorded at the Midland International Airport is:

a. April 1st (Trace, 1980)

b. April 13th (Trace, 1980)

c. April 20th (Trace, 1980)

d. May 1st (Trace, 1980)

2. The greatest recorded one day snowfall at the Midland International Airport is:

a. 4.3 Inches (On December 11, 1998)

b. 6.4 Inches (On December 11, 1998)

c. 9.8 Inches (On December 11, 1998)

d. 12.0 Inches (On December 11, 1998)

3. Wind Chill Warning criteria is met for west Texas/southeast New Mexico when wind chill values fall below or are equal to:

a. 0˚F

b. -5˚F

c. -10˚F

d. -15˚F

Answers on Next Page

In Midland Weather History...

January, 1, 2006: Record high temperatures (in the mid to upper 70s), very low relative humidities, high winds, and two and a half months without measurable precipitation combined to produce a very active fire weather day. A grass fire, driven by wind, burned 50,000 acres west of Hobbs. The western side of Hobbs had to be evacuated, including the community college, a casino, and several neighborhoods. Three firefighters sustained minor injuries, but no one was seriously injured. Four families were provided shelter by the Red Cross as eleven homes were destroyed. Two businesses and 10 vehicles also were destroyed by the fire.

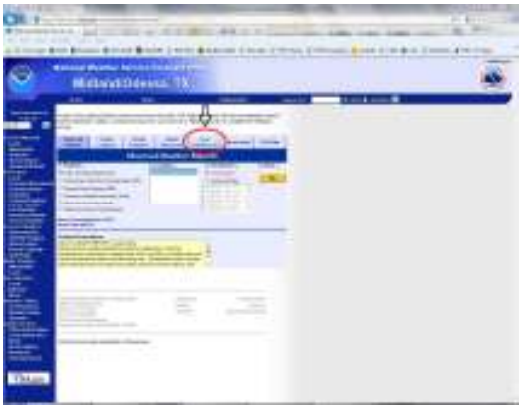
MAF
Weather Forecast Office
Midland, Texas

Find it on our Website: Climate Data/Records

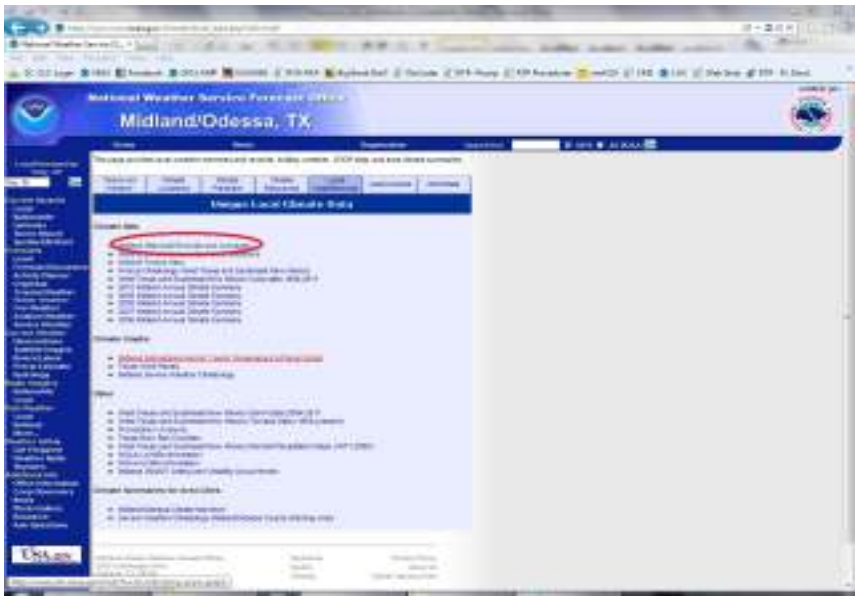
If you've ever searched for or would like to know how to locate a specific item of weather information, then this section of our newsletter is for you. "Find It on Our Website!" is a section that'll be in each publication of the *Dust Devil Digest* and is intended to help you become more aware of services and products we provide via the internet.

In this edition, we will help guide you to where we keep various climate data for Midland, TX. The climate section of our webpage is quite extensive, and includes items of data such as average freeze dates, daily record maximum temperatures, yearly precipitation averages, and much, much more! Here is the sequence of steps to take to get to our climate page:

Step 1: From www.weather.gov/midland, click on the 'Local' link (circled in red) under the 'Climate' heading.



Step 2: Next, click on the 'Local Data/Records' tab we've circled in red.



Step 3a: You should now be at the portal with various unique climate data/ information for Midland, TX.

Step 3b. Since it may be commonly requested, to get to the daily, monthly, or yearly temperature or precipitation data click on the link that is circled in red.

Trivia Answers:

Easy: 1. False; 2. False; 3. d

Medium: 1. True; 2. b; 3. c

Hard: 1. b; 2. c; 3. d

If you scored between…

15-18 points: Congratulations! You may be a meteorologist in the making!

11-15 points: Well done! Your winter weather knowledge is meltingly good.

7-11 points: Good job! You certainly know a fair amount about winter weather!

0-7 points: Keep trying! This may be your first winter in Midland, or you may be just starting to learn about winter weather. Keep at it, and you'll be winter-wise in no time!

Ask A Meteorologist: Why is it icier & colder on bridges than surrounding areas in the winter? *Cory– Odessa, TX*

Thanks for your question Cory! The main reason bridges are colder and tend to ice up before roads has to do with what's beneath the both of them. Bridges are exposed to the air, whereas roads have the earth beneath them, which keeps them comparatively more insulated. There are other smaller reasons which may have an effect on why bridges cool faster, such as the fact bridges are often built at higher elevations than roads, or some roads may have a lot of trees alongside of them, which could impede colder winds from reaching the roads.

Have a weather question you'd like answered? Would you like to know how something works in the National Weather Service, or the meaning of a certain product we issue? Anything else weather-related you'd like to know about? Simply e-mail your weather question to kurt.kotenberg@noaa.gov, and we will try to feature it in one of our future publications!

Ice on trees from an ice storm that impacted Lamesa in March, 2007

Weather Terms

The three weather terms for this edition of the *Dust Devil Digest* are:

1. Snowpack

-The total snow and ice on the ground, including both the new snow and the previous snow and ice which has not melted.

2. SAME (Specific Area Message Encoding)

-A tone alert system which allows NOAA Weather Radio receivers equipped with the SAME feature to sound an alert for only certain weather conditions or within a limited geographic area such as a county.

3. Sastrugi

-Ridges of snow formed on a snow field by the action of the wind.

These terms and more than 2,000 others can be found on the National Weather Service Glossary Page!

Record Midland snowstorm from December 7, 1998

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Midland/Odessa Weather
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Midland, Texas 79706

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We're on the Web!

www.weather.gov/midland

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Weather Forecast Office
Midland, Texas

"Working together to save lives!"

"The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community"

Midland/Odessa, TX County Warning Area

The Midland forecast area is composed of 26 counties, 2 in New Mexico and 24 in Texas.

Questions? Comments? Feedback? We would love to hear from you! Or if you have an idea you would like to see in a future newsletter, contact us!

sr-maf.webmaster@noaa.gov